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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
David S. Soane et al.

Serial No.: Not Assigned — Art Unit: Not Assigned

Filed on: Evendate Herewith — Examiner: Not Assigned

For: Expandable Polymeric Fibers and Their Method of Production

PRELIMINARY AMENDMENT

10056486 - 020602

Box PATENT APPLICATION
Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

This Preliminary Amendment is being filed concurrently with a Request to File a Divisional Application. Please amend the application as indicated below.

In the Specification

At page 1, amend the Title to read as indicated below and in the marked-up version included with this response as Attachment A:

Microcellular Foam and Foamed Composite Material

At page 1, insert before the first sentence:

This is a divisional application of co-pending application Serial No. 09/840,317, filed April 23, 2001, which is a divisional of application Serial No. 09/458,220, filed December 9, 1999, now U.S. Patent 6,221,486; all of which applications are incorporated by reference herein in their entirety.

In the Claims

Cancel claims 1-19 and 24-26, without prejudice.

Claims 20-23 are amended as indicated below and in the marked-up version included with this response as Attachment A:

20. (1st Time Amended) A microcellular foam comprising expanded hollow fibers fused to each other, each hollow fiber comprising a polymeric shell surrounding a continuous series of one or more internal gaseous voids, the polymeric shell comprising polymer chains that are at least partially radially oriented.

21. (1st Time Amended) A microcellular foam according to claim 20 wherein the hollow fibers are derived from thermo-expandable fibers, the thermo-expandable fiber characterized by a polymeric wall surrounding a continuous series of one or more pockets of blowing agent, the polymeric wall comprising reactive functionalities.

22. (1st Time Amended) A foamed composite material comprising expanded hollow fibers fused to a surrounding matrix, each hollow fiber comprising a polymeric shell surrounding a continuous series of one or more internal gaseous voids, the polymeric shell comprising polymer chains that are at least partially radially oriented.

23. (1st Time Amended) A foamed composite material according to claim 22 wherein the hollow fibers are derived from thermo-expandable fibers, the thermo-expandable fiber characterized by a polymeric wall surrounding a continuous series of one or more pockets of blowing agent, the polymeric wall comprising reactive functionalities.

New claims 27-44 are added, as follows and as indicated in the marked-up version included with this response as Attachment A:

27. A microcellular foam according to claim 20 wherein the hollow fibers are derived from thermo-expandable fibers, the thermo-expandable fiber characterized by a polymeric wall comprising a polymer and one or more reactive oligomers or crosslinkable moieties capable of forming a crosslinked, interpenetrating, or semi-interpenetrating polymeric network within the polymeric wall.

28. A microcellular foam according to claim 20 wherein the polymeric shell comprises an engineering thermoplastic polymer.

29. A microcellular foam according to claim 20 wherein the polymeric shell comprises a copolymer, multiblock polymer, or polymer blend.

30. A microcellular foam according to claim 20 wherein the polymeric shell comprises a naturally occurring polymer.

31. A microcellular foam according to claim 30 wherein the naturally occurring polymer is selected from the group consisting of polysaccharides, lipids, and proteins.

32. A microcellular foam according to claim 30 wherein the naturally occurring polymer is Zein.

33. A microcellular foam according to claim 21 wherein the blowing agent is a liquid.

34. A microcellular foam according to claim 21 wherein the blowing agent is a solid at room temperature.

35. A microcellular foam according to claim 21 wherein the blowing agent is insoluble and is in the shape of a cylinder, a strand or a fiber.

36. A foamed composite material according to claim 22 wherein the hollow fibers are derived from thermo-expandable fibers, the thermo-expandable fiber characterized by a polymeric wall comprising a polymer and one or more reactive oligomers or crosslinkable moieties capable of forming a crosslinked, interpenetrating, or semi-interpenetrating polymeric network within the polymeric wall.

37. A foamed composite material according to claim 22 wherein the polymeric shell comprises an engineering thermoplastic polymer.

38. A foamed composite material according to claim 22 wherein the polymeric shell comprises a copolymer, multiblock polymer, or polymer blend.

39. A foamed composite material according to claim 22 wherein the polymeric shell comprises a naturally occurring polymer.

40. A foamed composite material according to claim 39 wherein the naturally occurring polymer is selected from the group consisting of polysaccharides, lipids, and proteins.

41. A foamed composite material according to claim 39 wherein the naturally occurring polymer is Zein.

42. A foamed composite material according to claim 23 wherein the blowing agent is a liquid.

43. A foamed composite material according to claim 23 wherein the blowing agent is a solid at room temperature.

44. A foamed composite material according to claim 23 wherein the blowing agent is insoluble and is in the shape of a cylinder, a strand or a fiber.

REMARKS

I. **Status of the Application**

Claims 1-19 and 24-26 are canceled without prejudice, as being directed to non-elected inventions, the inventions having been set forth in the Restriction Requirement in the grandparent application SN 09/458,220.

Newly added claims 27-44 are supported in the specification and claims as filed. Thus, no new matter is added and it is believed that these claims are allowable.

The Title of the Invention has been amended to more clearly describe the presently claimed invention.

II. **Information Disclosure Statement**

An IDS is forwarded herewith under 37 CFR 1.97(b)(1). It is respectfully requested that the Examiner review the IDS and make it of record in this application.

III. Conclusion

Consideration and an early indication of the allowability of Claims 20-23 and 27-44 are earnestly requested. Should the Examiner have any questions, comments or suggestions, Applicant's below representative earnestly requests a telephone conference at (408) 615-0502.

Respectfully submitted,

Jacqueline S Larson

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Dated: February 6, 2002

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10656548.020502

ATTACHMENT A

Marked Up Version Showing Amendments Made
(language added is underlined and language deleted in enclosed in brackets)

In the Specification

At page 1, the Title is amended as indicated below:

Microcellular Foam and Foamed Composite Material [Expandable Polymeric Fibers and Their Method of Production]

At page 1, insert before the first sentence:

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Claims 20-23 are amended as indicated below:

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21. (1st Time Amended) A microcellular foam according to claim 20 wherein the hollow fibers are derived from thermo-expandable fibers, the thermo-expandable fiber characterized by a polymeric wall surrounding a continuous series of one or more pockets of blowing agent, the polymeric wall comprising reactive functionalities.

22. (1st Time Amended) A foamed composite material comprising expanded hollow fibers fused to a surrounding matrix, each hollow fiber comprising a polymeric shell surrounding a continuous series of one or more internal gaseous voids, the polymeric shell comprising polymer chains that are at least partially radially oriented.

23. (1st Time Amended) A foamed composite material according to claim 22 wherein the hollow fibers are derived from thermo-expandable fibers, the thermo-expandable fiber characterized by a polymeric wall surrounding a continuous series of one or more pockets of blowing agent, the polymeric wall comprising reactive functionalities.

New claims 27-44 are added, as follows:

-- 27. A microcellular foam according to claim 20 wherein the hollow fibers are derived from thermo-expandable fibers, the thermo-expandable fiber characterized by a polymeric wall comprising a polymer and one or more reactive oligomers or crosslinkable moieties capable of forming a crosslinked, interpenetrating, or semi-interpenetrating polymeric network within the polymeric wall.

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32. A microcellular foam according to claim 30 wherein the naturally occurring polymer is Zein.

33. A microcellular foam according to claim 21 wherein the blowing agent is a liquid.

34. A microcellular foam according to claim 21 wherein the blowing agent is a solid at room temperature.

35. A microcellular foam according to claim 21 wherein the blowing agent is insoluble and is in the shape of a cylinder, a strand or a fiber.

36. A foamed composite material according to claim 22 wherein the hollow fibers are derived from thermo-expandable fibers, the thermo-expandable fiber characterized by a polymeric wall comprising a polymer and one or more reactive oligomers or crosslinkable moieties capable of forming a crosslinked, interpenetrating, or semi-interpenetrating polymeric network within the polymeric wall.

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